Remarks

The following remarks and the above amendments are submitted to address all issues in this case, and to put this case in condition for allowance. Amendments and new claims are provided solely to better define the invention and are believed to be supported by the specification as originally filed and add no new matter. After the above amendment, application claims 18-35 are pending in the application. Application claims 18, 26 and 27 are independent.

Applicants have studied the Office Action Mailed August 10, 2007 and have the following remarks.

IDS

Applicant notes that the Examiner indicated a number of pieces of missing information with regards to certain of the references on an associated IDS. To the extent that Applicants' representative was able to locate additional information on those references, it has been provided on the included IDS and the Examiner is respectfully requested to consider the cited references.

35 U.S.C. §103

The Examiner rejected the prior claims as rendered obvious by Hokari (US Pub 2003/0168381) in combination with Wright (US 5,141,823). Applicant respectfully traverses as the combination of references does not show reforming, in a Supercritical Water (SCW) reactor, diesel fuel or jet fuel into a synthesis gas comprising a mixture of hydrogen and carbon monoxide.

The Examiner asserts Hokari provides for teaching for reforming of a hydrocarbon into a combustible gas for energy generation. The Examiner then asserts that the generated combustible gas of Hokari can be used in the fuel cell of Wright, Wright further showing that in order to use combustible gas in a fuel cell, the system needs to include a water-gas shift reactor and a capturing system for storage of hydrogen gas.

Applicants respectfully traverse as the Examiner has not shown the conversion of diesel fuel or jet fuel into a synthesis gas in an SCW reactor. The Examiner has simply shown reformation of a heavy oil containing vanadium into an oil not containing vanadium in a SCW reactor (Hokari) , and that hydrogen formed from methanol reformation using conventional reformers can be further purified through the use of a water-gas shift reactor (Wright).

In the first instance, the device of Hokari uses heavy oil which includes vanadium as an input. Heavy oil generally refers to a cruder form of oil than the diesel fuel or jet fuel used as an input of the present claims. While applicants acknowledge that most petrochemicals are complex mixtures, the purpose of Hokari is to remove vanadium from the heavy oil molecule (see e.g. Para 0001-0004 and FIG. 7 of Hokari) to produce a combustible oil suitable for use in a turbine engine without corrosion. In effect, Hokari is trying to eliminate vanadium from the oil molecule prior to combustion by releasing the vanadium from the oil molecule. This takes place while maintaining the oil molecule for use as a fuel oil (see e.g. Para 0037 and FIG. 7) suitable for use in a turbine engine. The turbine, therefore, does not require periodic cleaning to remove vanadium deposits or suffer from vanadium corrosion.

The present claims use diesel fuel or jet fuel as an input, converting it to a synthesis gas. The difference should be immediately clear as synthesis gas is not an "oil." Hokari outputs a light organic oil whose molecules include hydrogen, carbon, and nitrogen atoms (see

FIG. 7). The present claims produce synthesis gas (or "syngas" in common parlance) a mixture comprising hydrogen and carbon monoxide molecules.

Applicants feel the difficulty may have arisen from the Examiner confusing the term "synthesis gas" with combustible oil (or "fuel" oil) by reading the term "synthesis gas," not as a specific mixture, but as indicating "synthesized gasoline" or other oil. For this reason, Applicants have clarified in the claims that the produced synthesis gas comprises a mixture of hydrogen and carbon monoxide and is not a molecule including such atomic components.

Simply for the sake of argument, even if one was to assume that the heavy oil input of Hokari is similar to the diesel fuel or jet fuel input of the present claims (even though it is not as discussed above) Hokari does not reform into a synthesis gas, it reforms into a lighter oil, (see e.g. FIG. 7 of Hokari).

This is an important distinction because fuel cells (as discussed in the Wright reference) run on hydrogen. The output of Hokari is a light oil (effectively a hydrocarbon), while the output of the present claims is a synthesis gas comprising a mixture of hydrogen and carbon monoxide. Therefore, the synthesis gas of the present claims includes "free" hydrogen while the output of Hokari apparently does not. The turbine fuel of Hokari is still a hydrocarbon that would either need to be burned in a combustion engine (which is completely different energy generation source than a fuel cell) or converted to synthesis gas by another method.

Wright shows use of a system including a decomposer, acting on hydrogen peroxide, to generate oxygen and using the heat from that reaction on a methanol/water mixture to generate hydrogen to be used in a hydrogen fuel cell. Wright does not discuss in any detail the operation of the reformer, but apparently contemplates traditional reformation

technologies (such as those discussed in the paper entitled "Fuel Reforming" previously provided), not one using an SCW reactor as contemplated by the present claims.

As neither of the cited references shows the use of a SCW reactor to convert diesel or jet fuel into a synthesis gas, no combination of the cited references will render the present claims obvious.

Conclusion

In light of the above remarks, Applicant believes there are no further issues regarding the patentability of the pending claims and respectfully requests the Examiner withdraw her rejections and allow all pending claims so that this case can pass on to issue.

Applicants enclose herewith a fee for a one month extension of time to respond and the associated petition. Applicants believe that no other fees are due in connection with the filing of this Response. However, the Commissioner is hereby authorized to charge or credit to our Deposit Account, No. **50-0975**, any additional fees due in connection with the filing of this Response.

If any questions remain, Applicant respectfully requests a telephone call to the below-signed attorney at (314) 444-7783.

Respectfully submitted,
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